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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,786	09/23/2003	Martin Dieterle	243117US0	9557

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EXAMINER	
PUTTLITZ, KARL J	

ART UNIT	PAPER NUMBER
1621	

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/667,786	DIETERLE ET AL.	
	Examiner	Art Unit	
	Karl J. Puttlitz	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Priority

Acknowledgment is made of applicant's claim for foreign priority. It is noted, however, that applicant has not filed a certified copies of the following applications as required by 35 U.S.C. 119(b):

	10245585.2	09/27/2002	GERMANY
	10246119.8	10/01/2002	GERMANY
	10248584.4	10/17/2002	GERMANY
	10254278.3	11/20/2002	GERMANY
	10254279.1	11/20/2002	GERMANY

Prior Art Rejections

The claims of the Application are drawn to, inter alia, a process for the heterogeneously catalyzed gas-phase partial oxidation of acrolein to acrylic acid over a catalytically active multimetal oxide material which contains the elements Mo and V, at least one of the elements Te and Sb and at least one of the elements from the group consisting of Nb, Ta, W and Ti and whose X-ray diffraction pattern has no reflections with the peak position 2Θ=50.0.+/-.0.30 but has reflections h, i and k whose peaks are at the diffraction angles (2Θ) 22.2 t 0.5 (h), 27.3.+-.0.50 (i) and 28.2+0.50 (k),

the reflection h being the one with the strongest intensity within the X-ray diffraction pattern and having a full width at half height of not more than 0.50,

the intensity P_i of the reflection i and the intensity P_k of the reflection k fulfilling the relationship $0.65 \leq R \leq 0.85$, where R is the intensity ratio defined by the formula

$$R = P_i / (P_i + P_k)$$

and the full width at half height of the reflection i and of the reflection k being in each case .ltoreq.10, wherein the catalytically active multimetal oxide material is one of the stoichiometry (I) [SEE FORMULA I AND DEFINITIONS IN CLAIM 1].

The following prior art rejections are entered:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,407,280 to Chaturvedi et al. (Chaturvedi).

Chaturvedi teaches a catalyst comprising a promoted mixed metal oxide is useful for the vapor phase oxidation of an alkane or a mixture of an alkane and an alkene to an unsaturated carboxylic acid and for the vapor phase ammoxidation of an alkane or a mixture of an alkane and an alkene to an unsaturated nitrile.

In example 1 of the patent, a catalyst of the following formula was prepared.

$Mo_{1.0}V_{0.3}Te_{0.23}Nb_{0.125}Ni_{0.005}O_x$

The patent teaches diffraction peaks at column 7:

X-ray lattice plane		
Diffraction angle 2θ (±0.3°)	Spacing medium (Å)	Relative intensity
22.1[1]	4.02	100
28.2[2]	3.16	20~150
36.2[2]	2.48	5~60
45.2[2]	2.00	2~40
50.0[2]	1.82	2~40

These intensities may vary. See column 7, lines 13-21.

The patent also teaches that typical reaction conditions for the oxidation of propane or isobutane to acrylic acid or methacrylic acid may be utilized in the practice of the present invention. See column 12, lines 37-39.

Further, in the method of the present invention, an unsaturated aldehyde may sometimes be formed depending upon the reaction conditions. For example, when propane is present in the starting material mixture, acrolein may be formed; and when isobutane is present in the starting material mixture, methacrolein may be formed. In such a case, such an unsaturated aldehyde can be converted to the desired unsaturated carboxylic acid by subjecting it again to the vapor phase catalytic oxidation with the promoted mixed metal oxide-containing catalyst of the present invention or by subjecting it to a vapor phase catalytic oxidation reaction with a conventional oxidation reaction catalyst for an unsaturated aldehyde. See column 13, lines 18-30.

The difference between Chaturvedi and the claimed inventions is that Chaturvedi does not explicitly teach that R is the intensity ratio defined by the formula

$$R = P_i / (P_i + P_k)$$

However, Chaturvedi substantially teaches all of the elements of the claimed method, including the elements of the recited catalyst. Therefore, in the absence of any objective evidence to the contrary, those of ordinary skill would understand that the claimed intensity ratio is a necessary aspect of the catalyst and process disclosed by Chaturvedi, and thus, the intensity ratio is well within the motivation of those of ordinary skill. See M.P.E.P. 2112.01 ("Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best,* 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada,* 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best,* 562 F.2d at 1255, 195 USPQ at 433. See also *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985)").

Therefore, the rejected claims are prima facie obvious since Chaturvedi teaches all of the elements of the claimed process with a reasonable expectation of success.

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,781,008 to Bogan (Bogan).

Bogan teaches a mixed metal oxide, which may be an orthorhombic phase material, is a catalyst for the production of unsaturated carboxylic acids, or unsaturated nitrites, from alkanes, or mixtures of alkanes and alkenes.

The catalyst is of the formula:

$A_aV_bN_cX_dO_e$

A is at least one element selected from the group consisting of Mo and W,

N is at least one element selected from the group consisting of Te, Se and Sb,

X is at least one element selected from the group consisting of Nb, Ta, Ti, Al, Zr, Cr, Mn, Fe, Ru, Co, Rh, Ni, Pt, Bi, B, In, Ce, As, Ge, Sn, Li, Na, K, Rb, Cs, Fr, Be, Mg, Ca, Sr, Ba, Ra, Hf, Pb, P, Pm, Eu, Gd, Dy, Ho, Er, Tm, Yb, Lu, Au, Ag, Re, Pr, Zn, Ga, Pd, Ir, Nd, Y, Sm, Tb, Br, Cu, Sc, Cl, F and I,

wherein A, V, N and X are present in such amounts that the atomic ratio of A:V:N:X is a:b:c:d, and

wherein, when a=1, b=0.1 to 2, c=0.1 to 1, d=0.01 to 1 and e is dependent on the oxidation state of the other elements. See column 3, lines 30-45.

The patent teaches that When the oxidation reaction of propane, and especially the oxidation reaction of propane and propene, is conducted by the method of the

present invention, carbon monoxide, carbon dioxide, acetic acid, etc. may be produced as by-products, in addition to acrylic acid. Further, in the method of the present invention, an unsaturated aldehyde may sometimes be formed depending upon the reaction conditions. For example, when propane is present in the starting material mixture, acrolein may be formed; and when isobutane is present in the starting material mixture, methacrolein may be formed. In such a case, such an unsaturated aldehyde can be converted to the desired unsaturated carboxylic acid by subjecting it again to the vapor phase catalytic oxidation with the promoted mixed metal oxide-containing catalyst of the present invention or by subjecting it to a vapor phase catalytic oxidation reaction with a conventional oxidation reaction catalyst for an unsaturated aldehyde. See column14, lines 54-65.

The difference between the catalyst disclosed in Bogan and the catalyst recited in the rejected claims is that Bogan does not teach the catalyst with particularity so as to amount to anticipation (See M.P.E.P. § 2131: "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).). However, based on the above, Bogan teaches the catalyst with sufficient guidance, particularity, and with a reasonable expectation of success, that the invention would be *prima facie* obvious to one of ordinary skill (the prior art reference teaches or

suggests all the claim limitations with a reasonable expectation of success. See M.P.E.P. § 2143).

Also, Bogan does not explicitly teach that R is the intensity ratio defined by the formula

$$R = P_i / (P_i + P_k)$$

However, Bogan substantially teaches all of the elements of the claimed method, including the elements of the recited catalyst. Therefore, in the absence of any objective evidence to the contrary, those of ordinary skill would understand that the claimed intensity ratio is a necessary aspect of the catalyst and process disclosed by Bogan, and thus, the intensity ratio is well within the motivation of those of ordinary skill. See M.P.E.P. 2112.01 ("Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best,* 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada,* 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product.

In re Best, 562 F.2d at 1255, 195 USPQ at 433. See also *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985)").

Therefore, the rejected claims are prima facie obvious since Bogan teaches all of the elements of the claimed process with a reasonable expectation of success.

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/06199, as evidenced by counterpart U.S. patent No. 6,867,328 to Borgmeier et al. (Borgmeier).

Borgmeier teaches the following catalyst at column 3:

$$Mo_1V_bM_c^1M_d^2O_n$$

where

M_1 is Te and/or Sb,

M_2 is at least one of the elements from the group consisting of Nb, Ta, W, Ti, Al, Zr, Cr, Mn, Ga, Fe, Ru, Co, Rh, Ni, Pd, Pt, La, Bi, B, Ce, Sn, Zn, Si and In,

b is from 0.01 to 1,

c is from >0 to 1, preferably from 0.01 to 1,

d is from >0 to 1, preferably from 0.01 to 1, and

n is a number which is determined by the valency and frequency of the elements other than oxygen in (I).

The patent teaches that the multimetal oxide materials to be used according to the invention are also suitable for the gas-phase catalytic oxidation of acrolein and of propene to acrylic acid. See column 13, lines 7-18.

The required intensities are taught. Column 3, lines 48-67.

The difference between the catalyst disclosed in Borgmeier and the catalyst recited in the rejected claims is that Borgmier does not teach the catalyst with particularity so as to amount to anticipation (See M.P.E.P. § 2131: "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).). However, based on the above, Borgmeier teaches the catalyst with sufficient guidance, particularity, and with a reasonable expectation of success, that the invention would be *prima facie* obvious to one of ordinary skill (the prior art reference teaches or suggests all the claim limitations with a reasonable expectation of success. See M.P.E.P. § 2143).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-27 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 11 of copending Application No. 10/647335 (copending application). Although the conflicting claims are not identical, they are not patentably distinct from each other.

The copending application claims the same catalyst as the instant invention. Notwithstanding the fact that the claims of the copending application are drawn to the oxidqation of hydrocarbons, the application teaches that the claimed catalysts are also suitable for the heterogeneously catalyzed partial gas-phase oxidation and/or ammoxidation of compounds such as acrolein and methacrolein. See paragraph 0123. Therefore, the copending application recites the elements of the claimed invention with sufficient guidance, particularity, and with a reasonable expectation of success, that the invention would be *prima facie* obvious to one of ordinary skill (the prior art reference

teaches or suggests all the claim limitations with a reasonable expectation of success. See M.P.E.P. § 2143).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl J. Puttlitz whose telephone number is (571) 272-0645. The examiner can normally be reached on Monday to Friday from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter, can be reached at telephone number (571) 272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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